COMPUTER NETWORK CORPORATION

CONFIDENTIAL SUMMARY

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ABOUT INPUT

THE COMPANY

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research,
technology forecast
analysis, INPUT supp
in making informed
services are provide
of computers, comr
products and service

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to complex business

Formed in 1974,
leading internatic
Clients include over 100 of the world's largest and most technically advanced companies.

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COMPUTER NETWORK CORPORATION
CONFIDENTIAL EVALUATION

Prepared For:

Mr. Sam Wyly

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APRIL 1980

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COMPUTER NETWORK CORPORATION
CONFIDENTIAL EVALUATION

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I INTRODUCTION

I INTRODUCTION

- This report was prepared as a custom study at the behest of Mr. Sam Wyly.
- The purpose of the report is to assess the strengths and weaknesses of Computer Network Corporation (COMNET).
- Telephone and on-site interviews, supplementing information for INPUT's files, were used to prepare this report.
- INPUT completed the following tasks in the course of performing this study:
    - Background research to determine the products offered and markets served by COMNET.
    - An analysis of products competitive with COMNET's product line.
    - A competitive analysis of COMNET's products.
    - An assessment of the individual product life cycles of COMNET products.
    - The market potential for existing COMNET products, including a yearly forecast through 1985.

  - An assessment of COMNET's financial performance compared to its prime competitors'.

  - An evaluation of product marketing literature.

  - A brief synopsis of the key management staff.

- INPUT will provide telephone support to Mr. Wyly to answer questions regarding this custom study.

II SUMMARY OF FINDINGS AND RECOMMENDATIONS

II SUMMARY OF FINDINGS AND RECOMMENDATIONS

- Computer Network Corporation (COMNET) generates most of its revenue from the federal government (89%); the balance comes from companies performing work for the federal government (11%).

- INPUT expects that the market for providing remote computing services to the government will grow at a 23% average annual growth rate through 1985, by which time the market will exceed $1 billion in revenue.

- The utility portion of the remote computing services (RCS) market will grow at 26% per year to over $775 million by 1985.

    - Utility RCS is defined as the provision of access to a computer and/or communications network with basic software that enables any user to develop its own problem solution or processing system.

    - Utility RCS is the major segment of COMNET's business.

    - Utility RCS accounts for nearly 80% of all RCS provided to the government.

- The market for facilities management (FM) in the federal government is growing at 13% per year.

- COMNET is expected to lose $10 million of FM revenue at the end of this year when the EPA FM contract expires.
    - The contract is supposedly being changed to the provision of professional services only rather than a fully-staffed computer center. This is not COMNET's line of business.
    - No company has kept the EPA FM contract for more than one contract period (four years).
- COMNET has a proprietary text processing and remote job handling system (ALPHA) that is a replacement for IBM's TSO system. Virtually all of COMNET's competitors have similar systems; however, COMNET's ALPHA is generally rated marginally better in most environments.
- COMNET has no proprietary applications software. This forces the company to compete on a price-only basis with all of its major competitors.
    - Boeing Computer Services.
    - Martin Marietta Data Systems.
    - Optimum Systems.
- COMNET should examine the cost/benefit relationship of enhancing ALPHA. An enhanced product could theoretically win more business in its highly competitive environment.
- COMNET should be poised to go after Computer Sciences' RCS revenues as the government tries to portion out the Teleprocessing Services Program (TSP) contracts among more RCS vendors.
- COMNET should be building some form of distributed data processing (DDP) capability so that it can bid on this type of contract.

  - It is expected that many government contracts will require this capability within two to five years.

  - Office automation services will be one of the most important applications to operate in a DDP environment.

    - There is an opportunity to offer value added services in the office automation area rather than simply the computer power of utility RCS.

    - Office automation services could be sold to commercial as well as government organizations. This is an excellent opportunity to obtain leverage on the software development investment.

- Turnkey systems will begin to gain importance in the federal government by 1983.

  - Low-cost systems under $20,000 will be sold on sole-source contracts.

  - Developing applications products is the key requirement for a turnkey solution.

- COMNET operates more like a private company than a public company from a corporate-image perspective.

  - There is no company brochure that describes COMNET and its services.

  - There is no published product literature for ALPHA or other services.

  - Financial information is difficult to obtain.

- COMNET should institute a direct-mail, public relations campaign that would:

  - Make the commercial community aware of COMNET's capabilities.

    - Force the financial community to examine the strengths of the company. Computer services that have good press relations have higher stock prices on average than those companies that do not work well with the press.

- COMNET has experienced an excellent revenue growth rate over the last five years, averaging over 50% per year.

- COMNET's profit margin is lower than the overall industry average, but without the EPA contract the pre-tax margin would probably have been 16% in fiscal 1979.

- There are no public companies to compare directly to COMNET, but COMNET's margin is better than the margins of most companies that operate in the government sector.

- COMNET is financially sound and could add more debt without serious difficulty.

- COMNET is cash rich and would appear to be a target for takeover by any number of larger computer services companies.

- The management team of COMNET appears to be strong, although autocratically managed from the top. Gail Franke, Vice President, is one of the key employees along with Lee Johnson, Chairman, President, and CEO.

III PRODUCT REVIEW

III PRODUCT REVIEW

A. PRODUCTS OFFERED AND MARKETS SERVED

- COMNET offers two products:
  - Facilities management (FM).
  - Remote computing services (RCS).
- Nearly all FM contracts are with the federal government.
- The largest FM contract is with the EPA which generates nearly one-half of COMNET's revenue.
  - This contract involves complete data center management using an IBM 370/168.
- Other FM contracts employ dedicated computer resources (but not mainframes) for clients such as HEW, the Navy, and MCI.
  - These contracts generally call for dedicated tape or disk drives and memory.

  - The mainframe computers used on these FM contracts are not dedicated to particular users, but are shared between users.

  - There is clearly greater leverage available with this type of FM as compared with offering a dedicated mainframe for each customer.

- COMNET offers RCS as a utility type of service.

  - COMNET provides mainframes, a network, and software tools (COBOL, FORTRAN, etc.) for end users. The end users then create their own software.

  - End users submit their jobs to the computer for processing. Users are charged for the time and computer resources used to process each job.

- There are no proprietary applications available from COMNET's RCS.

- Virtually all of COMNET's RCS business is a direct result of government contracts.

  - Most processing is performed directly for government agencies under the GSA Teleprocessing Services Program (TSP). TSP contracts have fixed processing charges for resource usage.

  - Less than 10% of COMNET's processing is for commercial clients. However, the commercial clients are almost always government contractors, too.

- COMNET has developed a unique systems software for its remote computing.

  - The system, ALPHA, is designed to handle remote job submission and control.

  - User programs operating in the ALPHA environment may be run interactively or in the remote batch mode without application program modification.

  - ALPHA also replaces IBM's TSO. This facility allows application program development to be conducted interactively.

B. COMPETITION

- COMNET has a number of competitors in both facilities management and remote computing services, as shown in Exhibit III-1.

- COMNET's major competitors are:

  - Boeing Computer Services.

  - Martin Marietta Data Systems.

  - Optimum Systems.

- Other competitors listed in Exhibit III-1 may bid for some of the same contracts as COMNET, but not on a regular basis.

- The key to obtaining government business is to offer the lowest price for the services.

- There appears to be very little differentiation between competitors.

  - COMNET, Boeing Computer Services, Martin Marietta Data Systems, and Optimum Systems all offer large-scale IBM OS/MVS computers.

EXHIBIT III-1

COMPUTER NETWORK COMPETITION

COMPANY	1979 INPUT ESTIMATE OF TOTAL U.S. AVAILABLE COMPANY REVENUE* ($ MILLION)	1979 INPUT ESTIMATE OF FM AND RCS REVENUE** ($ MILLION)
AMERICAN MANAGEMENT SYSTEMS	$ 50	$ 10
BOEING COMPUTER SERVICES	100	75
COMPUTER SCIENCES	455	95
DATACROWN, LTD.	5	5
GENERAL ELECTRIC INFORMATION SERVICES	170	170
INFORMATICS	110	40
MARTIN MARIETTA DATA SYSTEMS	85	45
NATIONAL CSS	100	100
OPTIMUM SYSTEMS	25	20
PLANNING RESEARCH	130**	30
SERVICE BUREAU CORPORATION	150	120
SUN INFORMATION SERVICES	20	10
SYSTEM DEVELOPMENT CORPORATION	165	20
TYMSHARE	190	120

* U.S. ONLY AND ROUNDED TO NEAREST $5 MILLION
** COMPUTER SERVICES ONLY

  - All of these companies are listed on the GSA Teleprocessing Services Program list (TSP). COMNET was the first computer services company to qualify for TSP.

  - The only apparent differentiation between these companies is the system used for remote job handling and text processing.

    - The IBM product is TSO. None of the COMNET competitors use TSO because it consumes too many resources to be price competitive.

    - COMNET's ALPHA appears to be the best system, but it is not suited to all environments.

    - Optimum System's SUPERWYLBUR is probably the second best product.

    - Other competitors use different versions of WYLBUR which are not proprietary.

- COMNET and its competitors have excellent reputations in the government marketplace.

- The federal government appears to be concerned about the market share of CSC's INFONET in the government sector.

  - Users have been asked to convert applications from a Univac environment to other operating environments in order to reduce INFONET's market share.

  - COMNET and Optimum Systems appear to be particularly well positioned to obtain a number of the users that convert from Univac to IBM.

- There are several competitive issues of importance to COMNET.

  - Datacrown, Ltd., from Canada, is planning to bid for U.S. federal government business. Their entry strategy may be to buy the business initially with low-priced services. This will have an effect on all TSP vendors in the short term.

  - The EPA contract is up for renewal late in 1980.

    - No company has ever won the contract twice.

    - The contract has been generating about $10 million a year for COMNET.

    - EPA and COMNET have been having serious problems on allowable charges to be billed to the FM contract. Resolution is uncertain at this time.

    - Supposedly, the contract will be for professional services, rather than facilities management, after this year.

    - Computer Sciences, Electronic Data Systems, and System Development will be the key bidders.

  - Planning Research often competes with COMNET for small IBM jobs.

  - General Electric Information Services is the major competitor where networking is a requirement. COMNET generally will not bid in this situation.

  - Informatics does not have a local computer in Washington, D.C., which places them at a competitive disadvantage to COMNET and others who do have local computers.

  - Service Bureau and National CSS, both of whom offer IBM-based RCS, do not generally bid for the same type of work as COMNET.

  - Sun Information Services is trying to break into the federal government market, but it is not a competitive threat to COMNET today.

C. PRODUCT LIFE CYCLE ANALYSIS

- COMNET's text processing and remote job handling system, ALPHA, is a proven systems software product.

- COMNET must continue to support and enhance ALPHA.

- There is a definite risk of obsolescence for ALPHA when IBM announces its new large-scale computers. TSO, which is currently an add-on systems software product in terms of cost, will become part of the standard operating system from IBM. The TSO facility will probably be upgraded for the new computer system.

- There is serious question as to whether or not ALPHA will function in the operating system environment on the new large-scale IBM computer. IBM is definitely trying to discourage companies from making operating system alterations.

- COMNET should examine the feasibility of selling ALPHA to commercial users as a replacement for TSO. Virtually no further investment in software development would be required.

- There is little risk of obsolescence for COMNET's FM and RCS lines of business.

  - These lines of business do not have any proprietary applications software.

- There are two factors which will have an impact on the federal government in the next five years.

  - Government agencies will begin examining how distributed data processing (DDP) can be employed to tie remote agency offices together. Office automation will be the major application in the DDP delivery mode.

  - Turnkey systems will begin to gain importance in the government by 1983. Turnkey systems are defined as the combination of hardware and software sold together to an end user to solve a specific application need.

- A major driving force for turnkey systems is the availability of low-cost hardware which can perform substantial processing tasks. These systems, with software included, can easily sell for less than $20,000. Sole-source purchasing will probably be the rule for this type of system.

D. PRODUCT LITERATURE EVALUATION

- COMNET currently has no published product literature.

- This is a short-term liability that needs to be corrected. COMNET management indicated that this literature was being prepared, but it was not available for review.

- COMNET does not have a company brochure, aside from the annual report. This is another problem that needs to be solved.

- COMNET should examine the cost/benefit relationship of enhancing ALPHA.

  - ALPHA is the only significant product differentiation between COMNET and its competitors.

  - If additional features and functions were added to ALPHA, perhaps additional TSP contracts could be won.

- COMNET should consider instituting a direct-mail campaign to solicit commercial utility remote computing services business.

  - This business could be layered on the existing computers without adding significant incremental costs. Utility remote computing services are not industry-specialized.

  - In the long run, this strategy would provide diversification away from dependence on the federal government for virtually all of COMNET's revenues.

IV FINANCIAL ANALYSIS

IV FINANCIAL ANALYSIS

- COMNET's financial statistics are shown in Exhibit IV-1.

- Average annual revenue growth for the last five years is 53%.

    - If COMNET had not won the EPA contract, it is estimated that the average annual revenue growth would have been 30% over the last five years.

- Most observers believe that COMNET is making very little profit on the EPA contract.

    - COMNET and EPA have had a continuous disagreement on allowable charges.

    - COMNET has not received a large percentage of the bonus pool that EPA can award for performance. This pool amounts to nearly $1.7 million over the contract life.

- It is estimated that COMNET's pre-tax margin without the EPA FM contract would have been 14% and 16% in fiscal 1978 and 1979, respectively.

- COMNET's reported pre-tax profit margin of 10% in 1979 is lower than the overall industry average of 13% for processing services companies.

EXHIBIT IV-1

COMPUTER NETWORK FINANCIAL STATISTICS

FINANCIAL STATISTICS	1975	1976	1977	1978	1979
REVENUE*	$ 3.8	$ 6.9	$ 7.3	$ 16.6	$ 21.0
PROFIT BEFORE TAX*	$(0.4)	$ 1.5	$ 0.8	$ 1.8	$ 2.1
REVENUE GROWTH	-	82%	6%	127%	27%
PRE-TAX PROFIT MARGIN	(11%)	22%	11%	11%	10%

* IN $ MILLION

  - Without the EPA contact, however, COMNET would have exceeded the overall industry average for pre-tax profit margin.

- Exhibit IV-2 shows selected balance sheet comparisons of COMNET with overall industry averages of processing services companies in the same revenue class.

- COMNET has less long-term debt than the industry average.

  - Additional debt could probably be serviced which would make COMNET attractive from a business expansion point of view (new computers, acquisitions, etc.).

- COMNET appears to work its receivables better than other companies in its revenue class.

  - At today's high interest rates, this could translate into a $100,000 positive impact on profit.

- Overall industry averages by company type are shown in Appendix B, Exhibits B-3 and B-4.

- As of May 25, 1979, the only person known to own more than 5% of the voting stock, or rights to acquire voting stock, was Lee Johnson, the Chairman of the Board and President. Mr. Johnson beneficially owns 51,333 shares of common stock, or approximately 3% of the outstanding voting stock, and options to purchase 50,000 shares of common stock. If the options were to be exercised, Mr. Johnson would own 101,333 shares of common stock, or approximately 6.06% of the then outstanding shares.

EXHIBIT IV-2

COMPUTER NETWORK BALANCE SHEET COMPARISON WITH INDUSTRY AVERAGES

ITEM OR RATIO	ALL PROCESSING SERVICES COMPANIES WITH REVENUES BETWEEN $10 AND $25MILLION	COMNET FISCAL 1979
SELECTED ASSETS		
TRADE RECEIVABLES AS A PERCENT OF TOTAL ASSETS	24%	22%
TOTAL CURRENT ASSETS AS A PERCENT OF TOTAL ASSETS	49%	56%
SELECTED LIABILITIES		
CURRENT POSITION OF LONG-TERM DEBT AS A PERCENT OF TOTAL LIABILITIES	15%	14%
TOTAL CURRENT LIABILITIES AS A PERCENT OF TOTAL LIABILITIES	40%	54%
LONG-TERM DEBT LESS CURRENT PORTION AS A PERCENT OF TOTAL LIABILITIES	54%	38%
TOTAL STOCKHOLDERS EQUITY (NETWORK) AS A PERCENT OF TOTAL ASSETS	49%	59%
FINANCIAL*		
CURRENT RATIO	2.2	2.5
AFTER-TAX RETURN ON EQUITY	22%	18%
TOTAL DEBT OVER TOTAL CAPITAL	0.4	0.3
LONG-TERM DEBT OVER NET WORTH	0.5	0.5
TRADE RECEIVABLES TURNOVER (DAYS)	61	56

*SEE APPENDIX A FOR DEFINITIONS

V MARKET ASSESSMENT

V MARKET ASSESSMENT

- The purchase of computer services by the federal government is growing at 20% per year. Appendix C contains a detailed forecast of the various computer service delivery modes.

- The forecast for the processing portion of the computer services market is shown in Exhibit V-1. The remote computing services segment is growing the fastest.

- COMNET's main line of business is the provision of utility RCS.

  - COMNET supplies the computer resources and the end user writes, debugs, modifies, and submits the application for processing.

- INPUT is forecasting a 26% growth rate in utility RCS in the federal government, as indicated in Exhibit V-2.

  - The forecast in Exhibit V-2 is a subset of the overall forecast in Exhibit V-1.

- COMNET has less than 5% of the market share of the utility remote computing services sold to the federal government.

EXHIBIT V-1

COMPUTER SERVICES MARKET FORECAST FOR THE FEDERAL GOVERNMENT SECTOR, 1980-1985

COMPUTER PROCESSING SERVICE	COMPUTER SERVICES FORECAST ($ MILLION)						AAGR 1980-1985 (PERCENT)
	1980	1981	1982	1983	1984	1985	
REMOTE COMPUTING SERVICES	$ 369	$ 460	$ 565	$ 693	$ 838	$ 1,030	23%
FACILITIES MANAGEMENT	311	358	406	463	527	595	13
BATCH PROCESSING	60	60	62	62	63	63	2
TOTAL PROCESSING	$ 740	$ 878	$1,033	$1,218	$1,428	$ 1,688	18%

EXHIBIT V-2

UTILITY REMOTE COMPUTING SERVICES MARKET FORECAST FOR THE FEDERAL GOVERNMENT SECTOR, 1980-1985

UTILITY REMOTE COMPUTING SERVICES FORECAST ($ MILLION)						AAGR 1980-1985 (PERCENT)
1980	1981	1982	1983	1984	1985	
$248	$ 318	$ 400	$ 500	$ 615	$ 775	26%

APPENDIX A: DEFINITIONS

APPENDIX A: DEFINITIONS

COMPUTER SERVICES

- These are services provided by vendors which perform data processing functions using vendor computers (processing services), or assist users to perform such functions on their own computers (software products and/or professional services).

- The following are definitions of the modes of service used in this report:

  - Remote Computing Services. Provision of data processing to a user by means of terminals at the user's site(s) connected by a data communications network to the vendor's central computer. The three submodes of RCS are:

    - Interactive (timesharing), characterized by interaction of the user with the system, primarily for problem solving timesharing but also for data entry and transaction processing. The user is on-line to the program/files.

    - Remote Batch, where the user hands over control of a job to the vendor's computer which schedules job execution according to priorities and resource requirements.

    - Data Base inquiry, characterized by the retrieval of information from a vendor-maintained data base. This may be owned by the vendor or a third party.

    - User Site Hardware Services (USHS). These are offerings, typically provided by RCS vendors, which place programmable hardware on the user site (as compared to the EDP center). USHS offers:

        - Access to a communications network.

        - Access through the network to the RCS vendor's larger computers.

        - Significant software as part of the service.

- Batch Services. This includes data processing performed at vendor's sites of user programs and/or data which are physically transported (as opposed to electronically, by telecommunications media) to and/or from those sites. Data entry and data output services, such as keypunching and COM processing, are also included. Batch services include those expenditures by users which take their data to a vendor site which has a terminal connected to a remote computer used for the actual processing.

- Facilities Management (FM). (Also referred to as "Resource Management" or "Systems Management.") The management of all or part of a user's data processing functions under a long-term contract (not less than one year). To qualify as FM, the contractor must directly plan and control, as well as operate, the facility provided to the user on-site through communications lines or mixed mode. Simply providing resources, even though under a long-term contract, and/or providing for all of a users' processing needs, does not necessarily qualify as FM.

- Turnkey System. A combination of hardware and software integrated into a total system designed to fulfill completely the processing require-ments of an application (or applications) for a user.

PROCESSING SERVICES

- Processing services encompass facilities management, remote computing services, and batch services. They are categorized by type of services bought by users as follows:

  - General Business services are processing services for applications which are common to users across industry categories. Software is provided by the vendor; this can be a complete package, a payroll package, or an applications "tool," such as a budgeting model, where a user provides much of the customizing of the finished product it uses. General business processing is often repetitive and transaction-oriented.

  - Scientific and Engineering services are the processing of scientific and engineering problems for users across industries. The problems usually involve the solution of mathematical equations. Processing is generally problem solving and is non-repetitive, except in the sense that the same packages or "tools" are used to address different, but similar, problems.

  - Industry Specialty services provide processing for particular functions or problems unique to an industry or industry group. The software is provided by the vendor either as a complete package or as an applications "tool" which the user employs to produce a unique solution. Specialty applications can be either business or scientific in orientation; data base services, where the vendor supplies the data base and controls access to it (although it may be owned by a third party), are also included under this category. Examples of industry specialty applications are: seismic data processing, numerically-controlled machine tool software development, and demand deposit accounting.

- Utility services are those where the vendor provides access to a computer and/or communications network with basic software that enables any user to develop its own problem solution or processing system. These basic tools include terminal handling software, sorts, language compilers, data base management systems, information retrieval software, scientific library routines, and other systems software.

PROFESSIONAL SERVICES

- This category is made up of services related to EDP, including system design, custom/contract programming, consulting, education, and training. Services are provided on the basis of:

  - Time and Materials - The billing rate is measured in units of time, rather than actual costs.

  - Fixed Price - A firm price is agreed upon for a defined piece of work.

  - Cost Plus Fee - The billing rate depends on actual costs plus a fixed fee.

SOFTWARE PRODUCTS

- This category includes user's purchase of applications and systems packages for use on in-house computer systems. Included are lease and purchase expenditures, as well as fees for work performed by the vendor to implement and maintain the package at the users' site(s). Fees for work performed by organizations other than the package vendor are counted in professional services. There are two major subcategories of software products:

- Application Products are software which perform processing to serve user functions. They consist of:
    - Cross-industry products which are used in multiple user industry sectors. Examples are payroll, inventory control, and financial planning.
    - Industry specialized products which are used in a specific industry sector such as banking and finance, transportation, or discrete manufacturing. Examples are demand deposit accounting and airline scheduling.
- System Products are software that enable the computer/communications system to perform basic functions. They consist of:
    - System operations products which function during applications program execution to manage the computer system resource. Examples include operating systems, DBMS, communication monitors, emulators, and spoolers.
    - System utilization products which are used by operations personnel to utilize the computer system more effectively. Examples include performance measurement, job accounting, computer operations scheduling, and utilities.
    - System implementation products which are used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Examples include

languages, sorts, productivity aids, data dictionaries, report writers, project control systems, program library management systems, and retrieval systems.

- All expenditures and revenues addressed are "available" in that they are open for competition. "Captive" figures, which refer to expenditures by a user for services from a subsidiary company, such as Boeing Aircraft with Boeing Computer Services (BCS), are not included. They may be referred to when examining an individual "spin-off" vendor, such as BCS.

- When any questions arise as to the place to count certain user expenditures, INPUT addresses the questions from the user's viewpoint and categorizes the expenditures according to the answer to the question "What does the user perceive it is buying?"

FINANCIAL TERM DEFINITIONS

- Current Ratio: Current assets/current liabilities.

- After-Tax Return On Equity: Net income after tax/total equity.

- Total Debt Over Total Capital:

$$\frac{\text{Total debt (including current portion)}}{\text{Total debt (including current portion) + total equity}}$$

- Long-Term Debt Over Net Worth: Long-term debt/total equity.

- Trade Receivables Turnover (Days):

$$30*\left(\frac{\text{Trade Receivables}}{\left(\frac{\text{Annual Revenue}}{12}\right) * \quad 1+\left(\frac{\text{Revenue Growth Rate}}{2}\right)}\right)$$

Pre-Tax Profit Margin: Pre-tax income/revenue.

APPENDIX B: OVERALL INDUSTRY AVERAGES OF FINANCIAL STATISTICS

EXHIBIT B-1

COMPUTER SERVICES COMPANIES' ACTUAL GROWTH AND FORECASTS OF TOTAL AVAILABLE U.S. REVENUES

TYPE OF COMPANY	RESPONDENTS TO SURVEY			
	FORECAST 1977 TO 1978	ACTUAL* 1977 TO 1978	FORECAST 1978 TO 1979	FORECAST FOR NEXT 5 YEARS
PROCESSING SERVICES	22%	22%	19%	21%
SOFTWARE PRODUCTS	48	38	37	32
PROFESSIONAL SERVICES	31	25	32	27
WEIGHTED AVERAGE, ALL COMPANIES	22%	23%	22%	23%

*ACTUAL REPORTED GROWTH INCLUDES SOURCES OTHER THAN INCREMENTAL U.S. AVAILABLE REVENUES, PARTICULARLY ACQUISITIONS. THEREFORE, THIS GROWTH RATE IS OVERSTATED WHEN COMPARED TO THE ACTUAL 1977 TO 1978 GROWTH ESTIMATED TO HAVE BEEN 19% FOR THE TOTAL INDUSTRY

EXHIBIT B-2

COMPUTER SERVICES COMPANIES' WEIGHTED AVERAGE PROFITS BEFORE TAXES AS A PERCENT OF 1978 TOTAL REVENUES

PROFITABILITY / TYPE OF COMPANY	SIZE IN TOTAL 1978 ANNUAL REVENUES: LESS THAN $2M	SIZE IN TOTAL 1978 ANNUAL REVENUES: $2-10M	SIZE IN TOTAL 1978 ANNUAL REVENUES: GREATER THAN $10M	WEIGHTED AVERAGE
PROCESSING SERVICES	11%	13%	14%(1)	13%
SOFTWARE PRODUCTS	12	11	10	11
PROFESSIONAL SERVICES	6	8	5	6
WEIGHTED AVERAGE	11%	12%	11%	11%

(1) PROCESSING SERVICES COMPANIES IN THIS CATEGORY REPORTED PROFITS ARE AS FOLLOWS:

COMPANIES WITH REVENUES OF $10-25 MILLION, 11%
COMPANIES WITH REVENUES OVER $25 MILLION, 14%

EXHIBIT B-3

COMPARISON OF BALANCE SHEET ITEMS FROM PROCESSING SERVICES, SOFTWARE PRODUCTS, AND PROFESSIONAL SERVICES COMPANIES

CATEGORY OF COMPANY / ITEM OR RATIO	1978 FISCAL YEAR DATA			
	PROCESSING SERVICES	SOFTWARE PRODUCTS	PROFESSIONAL SERVICES	TOTAL
SELECTED ASSETS				
TRADE RECEIVABLES AS A PERCENT OF TOTAL ASSETS	16%	51%	48%	20%
TOTAL CURRENT ASSETS AS A PERCENT OF TOTAL ASSETS	32	77	69	33
SELECTED LIABILITIES				
CURRENT PORTION OF LONG-TERM DEPT AS A PERCENT OF TOTAL LIABILITIES	4	10	5	5
TOTAL CURRENT LIABILITIES AS A PERCENT OF TOTAL LIABILITIES	25	79	53	33
LONG-TERM DEBT LESS CURRENT PORTION AS A PERCENT OF TOTAL LIABILITIES	20	21	47	25
TOTAL STOCKHOLDERS EQUITY (NET WORTH) AS A PERCENT OF TOTAL ASSETS	35	45	32	34
FINANCIAL*				
CURRENT RATIO	2.4	4.6	3.3	2.9
AFTER-TAX RETURN ON EQUITY	30%	64%	34%	37%
TOTAL DEBT AS A PERCENT OF TOTAL CAPITAL	45%	24%	37%	42%
LONG-TERM DEBT AS A PERCENT OF NET WORTH	81%	67%	49%	7%
TRADE RECEIVABLES TURNOVER, (DAYS)	56	73	69	66

*SEE APPENDIX A FOR DEFINITIONS

EXHIBIT B-4

BALANCE SHEET DATA - COMPARISON BY SIZE OF PROCESSING SERVICES COMPANY

SIZE OF COMPANY ITEM OR RATIO	1978 FISCAL YEAR DATA				OVERALL AVERAGE
	$2M	$2-10M	$10-25M	$25M	
SELECTED ASSETS					
TRADE RECEIVABLES AS A PERCENT OF TOTAL ASSETS	27%	23%	24%	16%	16%
TOTAL CURRENT ASSETS AS A PERCENT OF TOTAL ASSETS	50	43	41	30	32
SELECTED LIABILITIES					
CURRENT PORTION OF LONG-TERM DEBT AS A PERCENT OF TOTAL LIABILITIES	15	20	15	3	4
TOTAL CURRENT LIABILITIES AS A PERCENT OF TOTAL LIABILITIES	42	48	40	28	28
LONG-TERM DEBT LESS CURRENT PORTION AS A PERCENT OF TOTAL LIABILITIES	58	52	54	15	20
TOTAL STOCKHOLDERS EQUITY (NET WORTH) AS A PERCENT OF ASSETS	50	43	49	34	35
FINANCIAL*					
CURRENT RATIO	3.2	1.9	2.2	1.6	2.4
RETURN ON EQUITY	41%	35%	22%	22%	30%
TOTAL DEBT OVER TOTAL CAPITAL	0.5	0.6	0.4	0.2	0.45
LONG TERM DEBT OVER NET WORTH	1.3	0.9	0.5	0.3	0.81
TRADE RECEIVABLES TURNOVER (DAYS)	45	55	61	65	56

*SEE APPENDIX A FOR DEFINITIONS

EXHIBIT B-5

COMPARISON OF EXPENDITURE PATTERNS BETWEEN TYPES OF COMPANIES

CATEGORY OF EXPENDITURES	PERCENT OF TOTAL FISCAL 1978 EXPENDITURES			
	PROCESSING	SOFTWARE PRODUCTS	PROFESSIONAL SERVICES	TOTAL INDUSTRY
MARKETING	8%	9%	2%	7%
SALES	19	37	7	19
RESEARCH AND PRODUCT DEVELOPMENT	6	21	4	7
OPERATIONS A. PERSONNEL EXCLUDING THOSE WORKING ON FIXED PRICE CONTRACTS	21	6	23	20
B. PERSONNEL WORKING ON FIXED PRICE CONTRACTS	1	-	6	2
C. COMPUTER SYSTEM EQUIPMENT AND MAINTENANCE	17	3	9	16
D. DATA COMMUNICATIONS	6	-	1	5
E. FACILITY OPERATIONS	5	2	5	5
PAYMENT TO THIRD PARTIES FOR SFW ROYALTIES	2	4	1	2
GENERAL ADMINISTRATIVE	10	18	12	10
ALL OTHER	5	-	30	7
TOTAL	100%	100%	100%	100%

EXHIIBT B-6

EXPENDITURE DISTRIBUTION - COMPARISON BY SIZE OF PROCESSING SERVICES COMPANY

CATEGORY OF EXPENDITURE \ SIZE OF COMPANY	PERCENT OF TOTAL 1978 EXPENDITURES			
	<$2M	$2-10M	$10-25M	>$25M
MARKETING	3%	4%	9%	8%
SALES	5	7	14	22
RESEARCH AND PRODUCT DEVELOPMENT	5	5	5	7
OPERATIONS				
a. PERSONNEL EXCLUDING THOSE WORKING ON FIXED PRICE CONTRACTS	31	27	16	21
b. PERSONNEL WORKING ON FIXED PRICE CONTRACTS	6	5	1	-
c. COMPUTER SYSTEM EQUIPMENT AND MAINTENANCE	21	22	22	17
d. DATA COMMUNICATIONS	2	2	7	6
e. FACILITY OPERATIONS	6	6	5	5
PAYMENTS TO THIRD PARTIES FOR SOFTWARE ROYALTIES	1	1	2	-
GENERAL ADMINISTRATIVE	15	16	20	8
ALL OTHER	6	5	1	5
TOTAL*	100%	100%	100%	100%

*MAY NOT ADD UP TO 100% BECAUSE OF ROUNDING

EXHIBIT B-7

PUBLISHED RESULTS OF PUBLIC COMPUTER SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END		1978	1977	% GROWTH 1977-1978	% PROFIT ON REVENUES	
			($ MILLION)			1977	1978
ANACOMP	6/30	R	$ 21.62	$ 16.18	34%		
		P	3.18	2.45	30	15%	15%
APPLIED DATA RESEARCH	12/31	R	22.63	16.93	34		
		P	1.97	3.03	<54>	18	9
ADP	6/30	R	299.26	245.49	22		
		P	54.03	45.97	18	19	18
BRADFORD NATIONAL	12/31	R	118.74	94.02	26		
		P	7.4	5.74	29	6	6
COMNET	3/31	R	16.60	7.30	127		
		P	1.80	0.80	25	11	11
CARS	12/31	R	20.20	16.50	22		
		P	1.50	1.50	0	9	7
COMPUSERV	12/31	R	15.84	14.33	11		
		P	1.37	1.66	<21>	12	9
COMPUTER SCIENCES CORP.	3/31	R	276.90	234.70	18		
		P	26.10	21.20	23	9	9
COMSHARE	6/30	R	25.64	18.21	41		
		P	3.76	2.27	66	12	13
ELECTRONIC DATA SYSTEMS	6/30	R	217.84	164.19	33		
		P	32.47	28.51	14	17	15

R = REVENUES (GROSS)
P = PROFITS (BEFORE TAXES & EXTRAORDINARY ITEMS)

EXHIBIT B-7 (CONT.)

PUBLISHED RESULTS OF PUBLIC COMPUTER SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END		1978 ($ MILLION)	1977 ($ MILLION)	% GROWTH 1977-1978	% PROFIT ON REVENUES 1977	% PROFIT ON REVENUES 1978
KEYDATA	6/30	R	$ 15.07	$ 14.56	4%		
		P	<.31>	.38	N.A.	3%	<2%>
MDSI	8/31	R	28.80	22.20	30		
		P	6.30	5.00	26	23	22
MATHEMATICA	6/30	R	26.50	22.70	17		
		P	0.45	1.36	<67>	6	2
NATIONAL CSS	2/28	R	48.89	41.70	17		
		P	7.49	5.48	37	13	15
NATIONAL DATA CORPORATION	5/31	R	35.80	30.70	17		
		P	4.97	4.16	19	14	14
ON-LINE SYSTEMS	4/30	R	22.62	16.00	41		
		P	2.92	2.27	29	14	13
QUOTRON	12/31	R	39.38	33.35	18		
		P	6.51	5.31	23	23	17
RAND INFORMATION SYSTEMS	2/25	R	11.67	7.59	54		
		P	1.10	0.78	41	10	9
RAPIDATA	12/31	R	19.11	17.91	7		
		P	2.52	1.84	37	10	13
SHARED MEDICAL	12/31	R	63.05	45.69	38		
		P	18.03	13.27	36	29	29

R = REVENUES (GROSS)
P = PROFITS (BEFORE TAXES & EXTRAORDINARY ITEMS)

EXHIBIT B-7 (CONT.)

PUBLISHED RESULTS OF PUBLIC COMPUTER SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END		1978 ($ MILLION)	1977 ($ MILLION)	% GROWTH 1977-1978	% PROFIT ON REVENUES 1977	% PROFIT ON REVENUES 1978
SYSTEMS DEVELOPMENT CORPORATION	6/30	R P	$145.04 4.51	$130.09 4.86	11% <8>	4%	3%
TYMSHARE	12/31	R P	149.56 19.39	101.17 15.81	48 23	16	13
TOTAL	-	R P	1,640.76 207.46	1,311.51 173.65	25* 19*	13*	13*

R = REVENUES (GROSS)
P = PROFITS (BEFORE TAXES & EXTRAORDINARY ITEMS)

*WEIGHTED AVERAGES

APPENDIX C: COMPUTER SERVICES MARKET FORECAST - FEDERAL GOVERNMENT

EXHIBIT C-1

COMPUTER SERVICES MARKET FORECAST - FEDERAL GOVERNMENT SECTOR, 1979-1984

COMPUTER SERVICE		USER EXPENDITURES								
MODE	TYPE	1978 ($M)	1979 ($M)	GROWTH 1978-1979 (%)	1980 ($M)	1981 ($M)	1982 ($M)	1983 ($M)	1984 ($M)	AAGR 1979-1984 (%)
REMOTE COMPUTING SERVICES	GEN. BUS.	$ 21	$ 24	15%	$ 29	$ 36	$ 43	$ 53	$ 63	21%
	SCI. & ENG.	50	58	15	66	74	83	92	101	12
	IND. SPEC.	17	21	23	26	32	39	48	59	23
	UTILITY	164	197	20	248	318	400	500	615	26
SUBTOTAL		$ 252	$ 300	19 %	$ 369	$ 460	$ 565	$ 693	$ 838	23%
FACILITIES MANAGEMENT	GEN. BUS.	-	-	-	-	-	-	-	-	-
	SCI. & ENG.	92	98	7	104	116	124	131	140	7
	IND. SPEC.	-	-	-	-	-	-	-	-	-
	UTILITY	153	182	19	207	242	282	332	387	16
SUBTOTAL		$ 245	$ 280	14 %	$ 311	$ 358	$ 406	$ 463	$ 527	13 %
BATCH	GEN. BUS.	0	0	0	3	3	4	4	5	14
	SCI. & ENG.	8	9	13	9	9	10	10	10	2
	IND. SPEC.	-	-	-	-	-	-	-	-	-
	UTILITY	45	48	7	48	48	48	48	48	0
SUBTOTAL		$ 53	$ 57	8 %	$ 60	$ 60	$ 62	$ 62	$ 63	2 %
TOTAL PROCESSING	GEN. BUS.	21	24	15	32	39	47	57	68	23
	SCI. & ENG.	150	165	10	179	199	217	233	251	9
	IND. SPEC.	17	21	23	26	32	39	48	59	23
	UTILITY	362	427	18	503	608	730	880	1,050	20
TOTAL		$ 550	$ 637	16%	$ 740	$ 878	$1,033	$1,218	$1,428	18%
SOFTWARE PRODUCTS	SYSTEM	163	204	25	255	319	398	498	623	25
	APPLICATION	15	19	24	22	25	29	33	38	15
TOTAL		$ 178	$ 223	25%	$ 277	$ 344	$ 427	$ 531	$ 661	24%
PROFESSIONAL SERVICES		350	419	20	503	603	724	869	1,043	20
GRAND TOTAL		$1,078	$1,279	19%	$1,520	$1,825	$2,184	$2,618	$3,132	20%

APPENDIX D: COMPANY HIGHLIGHT

COMPANY HIGHLIGHT

COMPUTER NETWORK CORPORATION
5185 MacArthur Boulevard, N.W.
Washington, DC 20016
(202) 537-2500

Lee E. Johnson, President and
Chairman of the Board
Public corporation, OTC
Total employees: 200
Total revenues fiscal year end
3/31/78: $16,597,000

THE COMPANY

- Computer Network Corporation (COMNET) was founded as a Maryland corporation in 1967 to perform remote computing services. Processing services, both remote computing and facilities management, continue to be its principal business.

- Revenues have grown approximately 126% from $7.4 million in fiscal 1977 to $16.6 million in fiscal 1978. This spectacular growth has primarily resulted from newly acquired facilities management contracts with the Federal government.

    - Based on financial results reported for the first quarter, fiscal 1979 revenues are expected to exceed $18 million, a 13% increase over fiscal 1978.
    - A five-year financial summary of COMNET is shown in the table below:

Five Year Financial Summary, COMNET
($ Thousand, Except Per Share Data)

Item / Fiscal Year	1978	1977	1976	1975	1974
Revenues	$16,597	$7,349	$6,891	$3,822	$3,842
Income before taxes and extraordinary items	1,786	797	1,508	(367)	363
Net income	1,243	494	1,216	(570)	126
Earnings per common share (fully diluted)	0.96	0.44	1.02	(0.46)	0.14

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- The approximately 200 employees are distributed as follows:

Marketing/sales	5%
Software services/customer support (includes systems programming)	25
Computer operations	60
General and administrative	10
	100%

KEY PRODUCTS AND SERVICES

- Processing services revenues accounted for 100% of fiscal 1978 revenues as shown below:

- Remote computing	55%
- Facilities management (FM)	45
	100%

- COMNET provides processing services to approximately 250 different customers, about 4,000 individual users. ALPHA, COMNET's remote computing service, provides over 300 applications from the program library to users. It includes:
  - The Information Retrieval System. This enables research scientists, educators, and government program management specialists to retrieve information from data banks related to environment, health, medicine, and transportation. The system also provides litigation support to attorneys.
  - Modeling packages, such as SPSS, DATA-TEXT, BMD, TPL, SOUPAC, and SAS. These are used for long range planning.
    - Process manufacturers use these for predicting the effect of making changes in selected subprocesses.
    - Radio and television survey data are processed and reported to aid in determining the size of grants given annually to various stations.
    - Data on hazardous materials and authorized carriers are stored and analyzed so that permits can be produced and issued easily and accurately to insure the safety of the carriers and the public.
  - Data base management systems. These include CICS, SYSTEM 2000, TOTAL, INQUIRE, MODEL 204, EASYTRIEVE, and IMS.

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- Remote computing FM contracts call for COMNET personnel at the user site, and in some cases, dedicated hardware. FM, generating an aggregated $40 million in revenues over a three to four year period, includes contracts with:
  - Environmental Protection Agency, valued at $40 million over four years. It was awarded in November 1976. A dedicated IBM 370/168 is required.
  - Department of Health, Education and Welfare, Office of Education, valued at $9 million over three years. It was awarded in April 1977.
  - Department of the Navy, Bureau of Personnel, valued at $4.5 million over three years. It was awarded in August 1976.
  - General Services Administration Teleprocessing Services Program, awarded in November 1976. COMNET was the first vendor to be awarded a contract under this program, which permits governmental agencies across the country to obtain processing services directly from private industry.
  - MCI Telecommunications Corp., valued at $3 million over a three year period. COMNET's first FM contract with private industry, it was awarded in May 1977.

APPLICATIONS General business applications generated 80% of processing services revenues for fiscal 1978, and scientific applications accounted for 20%.

INDUSTRY MARKETS The Federal Government accounted for approximately 70% of fiscal 1978 revenues. The remaining 30% were distributed.

GEOGRAPHIC MARKETS All of COMNET's revenues for fiscal 1978 came from the South Atlantic and Northeastern regions, primarily Washington, D.C. However, individual users within government and private industry are located throughout the continental U.S.

COMPUTER HARDWARE AND SOFTWARE

- The following CPUs all run under OS/MVT Release 21.8 and are used to provide processing services:
  - One IBM 370/168
  - One IBM 370/158
  - One IBM 360/65
  - One IBM 30/32 (to be installed during August or September 1978)
  - One Itel AS6
  - Two Itel AS5

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- Several Comten communications front-end processors are used to interface the CPUs with a nationwide network.
- Management reports that COMNET is the only IBM-based service bureau which had designed and developed its own interactive remote computing systems software (ALPHA).

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